WHAT IS CLAIMED:

1. A method for correcting errors in at least one of a plurality of pairs of profiles $\{A_m, C_m\}$, A_m being an experiment profile, C_m being a reference profile, where $m = 1, 2, \ldots, M$, M is the number of pairs of profiles, said method comprising

(a) calculating an average reference profile $\overline{C}$ of reference profiles $\{C_m\}$, $m = 1, 2, \ldots, M$;

(b) determining for at least one profile pair $m \in \{1, 2, \ldots, M\}$ a differential reference profile of C_m and $\overline{C}$; and

(c) generating for said at least one profile pair m an error-adjusted experiment profile A'_m by a method comprising adjusting said experimental profile A_m using said differential reference profile determined for said profile pair m, thereby correcting errors in said at least one of said plurality of pairs of profiles;

wherein for each $m \in \{1, 2, \ldots, M\}$, said error-adjusted experiment profile A'_m comprises data set $\{A'_m(k)\}$, said experiment profile A_m comprises data set $\{A_m(k)\}$, said reference profile C_m comprises data set $\{C_m(k)\}$, and said average reference profile $\overline{C}$ comprises data set $\{\overline{C}(k)\}$, wherein said data set $\{A_m(k)\}$ comprises measurements of a plurality of different cellular constituents measured in a sample having been subject to condition A_m, said data set $\{C_m(k)\}$ comprises measurements of said plurality of different cellular constituents measured in a sample having been subject to condition C, and wherein $k = 1, 2, \ldots, N$ is an index of measurements of cellular constituents, N being the total number of measurements.

2. The method of claim 1, wherein said steps (b) and (c) are performed for each profile pair m.

3. The method of claim 2, wherein experiment profile A_m and reference profile C_m are measured in the same experimental reaction.

4. The method of claim 3, wherein said $\overline{C}(k)$ is calculated according to equation

$$\overline{C}(k) = \frac{1}{M}\sum_{m=1}^{M} C_m(k)$$

wherein said differential reference profile is calculated according to equation

$$C_{diff}(m,k) = C_m(k) - \overline{C}(k)$$

and wherein said error-adjusted profile is calculated according to equation

$$A_m^{'}(k) = A_m - C_{diff}(m,k).$$

5. The method of claim 4, further comprising

(d) calculating for each profile pair m an error-corrected experiment profile A''_m comprising data set $\{A''_m(k)\}$ by combining said error-adjusted experiment profile A'_m with said experiment profile A_m using a weighing factor $\{w(k)\}$, k = 1, 2, ..., N, wherein $w(k)$ is a weighing factor for the k' th measurement.

6. The method of claim 5, wherein said error-corrected experimental profile A''_m is calculated according to equation

$$A_m^{''}(k) = (1 - w(k)) \cdot A_m(k) + w(k) \cdot A_m^{'}(k).$$

7. The method of claim 6, wherein said weighing factor *w(k)* is determining according to equation

$$w(k) = 1 - e^{-0.5 \cdot \left(\frac{\overline{C}(k)}{avg\_bkgstd}\right)^2}$$

where *avg_bkgstd* is an average background standard error.

8. The method of claim 7, wherein said *avg_bkgstd* is determined according to equation

$$avg\_bkgstd = \frac{1}{N}\sum_{k=1}^{N}\left(\frac{1}{M}\sum_{m=1}^{M} bkgstd(m,k)\right)$$

where *bkgstd (m, k)* is background standard error of $C_m(k)$.

9. The method of claim 4, further comprising determining errors $\{\sigma_m^{'}\}$ of said error-adjusted experiment profiles $\{A'_m\}$.

10. The method of claim 9, wherein said errors are determined according to equation

$$\sigma_m^{'}(k) = \sqrt{\sigma_m^2(k) + mixed\_\sigma_m^2(k) - 2 \cdot Cor(k) \cdot \sigma_m(k) \cdot mixed\_\sigma_m(k)}$$

where $\sigma_m(k)$ is the standard error of $A_m(k)$, $mixed\_\sigma_m(k)$ is determined according to equation

$$mixed\_\sigma_m(k) = \frac{\sigma_m(k) + (M-1)\cdot\sigma_{ref}(k)}{M}$$

where $\sigma_{ref}(k) = \sqrt{\frac{1}{M-1}\sum_m^M (C_m(k) - \overline{C}(k))^2}$

and where Cor(k) is a correlation coefficient between experiment profile and reference profile.

11. The method of claim 10, wherein said Cor(k) is determined according to equation

$$Cor(k) = CorMax \cdot \left(1 - e^{-0.5\cdot\left(\frac{\overline{C}(k)}{avg\_bkgstd}\right)^2}\right)$$

where CorMax is a number between 0 and 1.

12. The method of claim 7, further comprising determining errors $\{\sigma_m^{''}\}$ of said error-corrected experiment profile $\{A''_m\}$.

13. The method of claim 12, wherein said errors are determined according to equation

$$\sigma_m^{''}(k) = \sqrt{[1 - w(k)]\cdot\sigma_m^2(k) + w(k)\cdot\sigma_m^{'}(k)}$$

where $\sigma_m(k)$ is the standard error of $A_m(k)$, $\sigma_m^{'}(k)$ is determined according to equation

$$\sigma_m^{'}(k) = \sqrt{\sigma_m^2(k) + mixed\_\sigma_m^2(k) - 2\cdot Cor(k)\cdot\sigma_m(k)\cdot mixed\_\sigma_m(k)}$$

where $mixed\_\sigma_m(k)$ is determined according to equation

$$mixed\_\sigma_m(k) = \frac{\sigma_m(k) + (M-1)\cdot\sigma_{ref}(k)}{M}$$

where $\sigma_{ref}(k) = \sqrt{\frac{1}{M-1}\sum_{m}^{M}(C_m(k) - \overline{C}(k))^2}$

and where Cor(k) is a correlation coefficient.

14. The method of claim 13, wherein said Cor(k) is determined according to equation

$$Cor(k) = CorMax \cdot \left(1 - e^{-0.5\cdot\left(\frac{\overline{C}(k)}{avg\_bkgstd}\right)^2}\right)$$

where CorMax is a number between 0 and 1.

15. The method of claim 2, wherein each said pair of profiles A_m and C_m is measured in a two-channel microarray experiment.

16. The method of claim 15, wherein said reference profiles $\{C_m\}$, m = 1, 2, …, M, are measured with samples labeled with a same label.

17. The method of claim 2, wherein at least one of said plurality of pairs of profiles $\{A_m, C_m\}$ is a virtual profile.

18. The method of claim 14, wherein said plurality of pairs of profiles $\{A_m, C_m\}$ are transformed profiles comprising transformed measurements.

19. The method of claim 18, wherein said transformed measurements are obtained according to equations

$$A_m(k) = f(x) = \frac{\ln\left(\frac{b^2 + 2\cdot a^2 \cdot XA_m(k)}{a} + 2\cdot\sqrt{c^2 + b^2 \cdot XA_m(k) + a^2 \cdot [XA_m(k)]^2}\right)}{a} + d,$$

for $XA_m(k)>0$

and

$$C_m(k) = f(x) = \frac{\ln\left(\frac{b^2 + 2\cdot a^2 \cdot XC_m(k)}{a} + 2\cdot\sqrt{c^2 + b^2 \cdot XC_m(k) + a^2 \cdot [XC_m(k)]^2}\right)}{a} + d,$$

for $XC_m(k)>0$

where experiment profile XA_m comprises measured data set $\{XA_m(k)\}$, said reference profile XC_m comprises measured data set $\{XC_m(k)\}$, where d is described by equation

$$d = \frac{-\ln\left(\frac{b^2}{a} + 2 \cdot c\right)}{a}$$

and where a is the fractional error coefficient of said experiment, b is the Poisson error coefficient of said experiment, and c is the standard deviation of background noise of said experiment.

20. The method of claim 14, wherein said experiment profile A_m and reference profile C_m comprises measurements from which nonlinearity is removed.

21. The method of claim 20, wherein said measurements from which nonlinearity is removed are obtained by a method comprising

(i) determining an average profile of all experiment profiles $\{A_m\}$ and reference profiles $\{C_m\}$; and

(ii) adjusting each A_m or C_m based on a difference between said A_m or C_m and said average profile.

22. The method of claim 21, wherein said difference is determined using a subset of measurements in the profiles.

23. The method of claim 22, wherein said subset of measurements in the profiles consists of measurements that are ranked similarly between an experiment or reference profile and said average profile.

24. The method of claim 23, wherein said comparing in said step (ii) is carried out by a method comprising:

(ii1) binning measurements in said subset into a plurality of bins, each said bin consisting of measurements having a value in a given range;

(ii2) calculating mean difference between said A_m or C_m and the average profile in each bin;

(ii3) determining a curve of said mean difference as a function of values of measurements for said A_m or C_m, *nonlinear_A_m* or *nonlinear_C_m*, respectively;

(ii4) adjusting A_m or C_m according to equations

$$A_m^{corr}(k) = A_m(k) - nonlinear\_A_m(k)$$

or

$$C_m^{corr}(k) = C_m(k) - nonlinear\_C_m(k)$$

where k = 1, …, N.

25. The method of claim 14, wherein each said experiment profile A_m and reference profile C_m is a normalized profile.

26. The method of claim 25, wherein said normalized profile is obtained by a method comprising normalizing experiment profile A_m and reference profile C_m according to equation

$$NA_m(k) = \frac{A_m(k) \cdot \overline{AC}}{\overline{A_m}}$$

and

$$NC_m(k) = \frac{C_m(k) \cdot \overline{AC}}{\overline{C_m}}$$

where $\overline{A_m}$ is an average of profile $\{A_m(k)\}$, and $\overline{C_m}$ is an average of profile $\{C_m(k)\}$; wherein $\overline{AC}$ is an average of all profiles calculated according to equation

$$\overline{AC} = \frac{1}{2M} \sum_{m=1}^{M} (\overline{A_m} + \overline{C_m}).$$

27. The method of claim 26, further comprising normalizing errors of said experiment profile A_m and reference profile C_m according to equation

$$\sigma_m^{NA}(k) = \frac{\sigma_m^{A}(k) \cdot \overline{AC}}{\overline{A_m}}$$

and

$$\sigma_m^{NC}(k) = \frac{\sigma_m^{C}(k) \cdot \overline{AC}}{\overline{C_m}}$$

where $\sigma_m^A(k)$ and $\sigma_m^C(k)$ are the standard error of $A_m(k)$ and $C_m(k)$, respectively, and $\sigma_m^{NA}(k)$ and $\sigma_m^{NC}(k)$ are normalized standard error of $NA_m(k)$ and $NC_m(k)$, respectively.

28. The method of claim 27, further comprising normalizing background errors of said experiment profile A_m and reference profile C_m according to equation

$$bkgstd_m^{NA}(k) = \frac{bkgstd_m^A(k) \cdot \overline{AC}}{\overline{A_m}}$$

and

$$bkgstd_m^{NC}(k) = \frac{bkgstd_m^C(k) \cdot \overline{AC}}{\overline{C_m}}$$

where $bkgstd_m^A(k)$ and $bkgstd_m^C(k)$ are the standard background error of $A_m(k)$ and $C_m(k)$, respectively, and $bkgstd_m^{NA}(k)$ and $bkgstd_m^{NC}(k)$ are normalized standard background error of $NA_m(k)$ and $NC_m(k)$, respectively.

29. The method of claim 28, wherein said $\overline{A_m}$ and $\overline{C_m}$ are an average of measurements in profile $\{A_m(k)\}$ and $\{C_m(k)\}$, respectively, excluding measurements having a value among the highest 10%.

30. A method of correcting errors in a plurality of pairs of profiles $\{XA_m, XC_m\}$, XA_m being an experiment profile, XC_m being a reference profile, where $m = 1, 2, \ldots, M$, M is the number of pairs of profiles, said method comprising

(a) processing said profiles to obtain a plurality of pairs of processed profiles $\{A_m, C_m\}$, A_m being a processed experiment profile, C_m being a processed reference profile;

(b) calculating an average reference profile $\overline{C}$ of reference profiles $\{C_m\}$, $m = 1, 2, \ldots, M$;

(c) determining for each profile pair m a differential reference profile of C_m and $\overline{C}$; and

(d) generating for each profile pair m an error-adjusted experiment profile A'_m by a method comprising adjusting said experimental profile A_m using said differential reference profile determined for said profile pair m, thereby correcting errors in said plurality of pairs of profiles;

wherein for each $m \in \{1, 2, \ldots, M\}$, said error-adjusted experiment profile A'_m comprises data set $\{A'_m(k)\}$, said processed experiment profile A_m comprises data set $\{A_m(k)\}$, said processed reference profile C_m comprises data set $\{C_m(k)\}$, and said average reference profile $\overline{C}$ comprises data set $\{\overline{C}(k)\}$, said experiment profile XA_m comprises data set $\{XA_m(k)\}$, said reference profile XC_m comprises data set $\{XC_m(k)\}$, wherein said data set $\{XA_m(k)\}$ comprises measurements of a plurality of different cellular constituents measured in a sample having been subject to condition A_m, said data set $\{XC_m(k)\}$ comprises measurements of said plurality of different cellular constituents measured in a sample having been subject to condition C, and where $k = 1, 2, \ldots, N$ is an index of measurements of cellular constituents, N being the total number of measurements.

31. The method of claim 30, wherein said step (a) comprises normalizing each said experiment profile XA_m and reference profile XC_m.

32. The method of claim 31, wherein said normalizing is carried out according to equation

$$A_m(k) = NA_m(k) = \frac{XA_m(k) \cdot \overline{XAC}}{\overline{XA_m}}$$

and

$$C_m(k) = NC_m(k) = \frac{XC_m(k) \cdot \overline{XAC}}{\overline{XC_m}}$$

where NA_m and NC_m denotes normalized experiment and normalized reference profiles, respectively, where $\overline{XA_m}$ is an average of profile $\{XA_m\}$, and $\overline{XC_m}$ is an average of profile $\{XC_m\}$; wherein $\overline{XAC}$ is an average of all profiles calculated according to equation

$$\overline{XAC} = \frac{1}{2M}\sum_{m=1}^{M}(\overline{XA_m} + \overline{XC_m}).$$

33. The method of claim 32, further comprising normalizing errors of said experiment profile XA_m and reference profile XC_m according to equation

$$\sigma_m^A(k) = \frac{\sigma_m^{XA}(k) \cdot \overline{XAC}}{\overline{XA_m}}$$

and

$$\sigma_m^C(k) = \frac{\sigma_m^{XC}(k) \cdot \overline{XAC}}{\overline{XC_m}}$$

where $\sigma_m^{XA}(k)$ and $\sigma_m^{XC}(k)$ are the standard error of $XA_m(k)$ and $XC_m(k)$, respectively, and $\sigma_m^{A}(k)$ and $\sigma_m^{C}(k)$ are normalized standard error of $A_m(k)$ and $C_m(k)$, respectively.

34. The method of claim 33, further comprising normalizing background errors of said experiment profile XA_m and reference profile XC_m according to equation

$$bkgstd_m^A(k) = \frac{bkgstd_m^{XA}(k) \cdot \overline{XAC}}{\overline{XA_m}}$$

and

$$bkgstd_m^C(k) = \frac{bkgstd_m^{XC}(k) \cdot \overline{XAC}}{\overline{XC_m}}$$

where $bkgstd_m^{XA}(k)$ and $bkgstd_m^{XC}(k)$ are the standard background error of $XA_m(k)$ and $XC_m(k)$, respectively, and $bkgstd_m^A(k)$ and $bkgstd_m^C(k)$ are normalized standard background error of $A_m(k)$ and $C_m(k)$, respectively.

35. The method of claim 33, wherein said $\overline{XA_m}$ and $\overline{XC_m}$ are an average of measurements in profile $\{XA_m\}$ and $\{XC_m\}$, respectively, excluding measurements having a value among the highest 10%.

36. The method of claim 35, wherein said step (a) further comprises transforming said normalized profiles to obtain transformed profiles.

37. The method of claim 36, wherein said transforming is carried out according to equations

$$TA_m(k) = f(x) = \frac{\ln\left(\frac{b^2 + 2 \cdot a^2 \cdot NA_m(k)}{a} + 2 \cdot \sqrt{c^2 + b^2 \cdot NA_m(k) + a^2 \cdot [NA_m(k)]^2}\right)}{a} + d,$$

for $NA_m(k) > 0$

and

$$TC_m(k) = f(x) = \frac{\ln\left(\frac{b^2 + 2 \cdot a^2 \cdot NC_m(k)}{a} + 2 \cdot \sqrt{c^2 + b^2 \cdot NC_m(k) + a^2 \cdot [NC_m(k)]^2}\right)}{a} + d,$$

for $NC_m(k) > 0$

where experiment profile XA_m comprises measured data set $\{XA_m(k)\}$, said reference profile XC_m comprises measured data set $\{XC_m(k)\}$, where d is described by equation

$$d = \frac{-\ln\left(\frac{b^2}{a} + 2 \cdot c\right)}{a}$$

and where a is the fractional error coefficient of said experiment, b is the Poisson error coefficient of said experiment, and c is the standard deviation of background noise of said experiment.

38. The method of claim 37, wherein said step (a) further comprises removing nonlinearity from each said transformed experiment profile TA_m and transformed reference profile TC_m.

39. The method of claim 38, wherein said removing nonlinearity is carried out by a method comprising

(a1) determining an average transformed profile of all transformed experiment profiles $\{TA_m\}$ and transformed reference profiles $\{TC_m\}$; and

(a2) adjusting each TA_m or TC_m using a difference between said TA_m or TC_m and said average transformed profile.

40. The method of claim 39, wherein said difference is determined using a subset of measurements in said transformed profiles.

41. The method of claim 40, wherein said subset of measurements in said transformed profiles consists of measurements that are ranked similarly between an experiment or reference profile and said average profile.

42. The method of claim 41, wherein said comparing in said step (a2) is carried out by a method comprising:

(a2i) binning measurements in said subset into a plurality of bins, each said bin consisting of measurements having a value in a given range;

(a2ii) calculating mean difference between said A_m or C_m and the average profile in each bin;

(a2iii) determining a curve of said mean difference as a function of values of measurements for said TA_m or TC_m, $nonlinear\_TA_m$ or $nonlinear\_TC_m$, respectively; and

(a2iv) adjusting TA_m or TC_m according to equations

$$TA_m^{corr}(k) = TA_m(k) - nonlinear\_TA_m(k)$$

or

$$TC_m^{corr}(k) = TC_m(k) - nonlinear\_TC_m(k)$$

where k = 1, …, N.

43. The method of claim 42, wherein experiment profile A_m and reference profile C_m are measured in the same experimental reaction.

44. The method of claim 43, wherein said $\overline{C}$ (k) is calculated according to equation

$$\overline{C}(k) = \frac{1}{M}\sum_{m=1}^{M} C_m(k)$$

wherein said differential reference profile is calculated according to equation

$$C_{diff}(m,k) = C_m(k) - \overline{C}(k)$$

and wherein said error-adjusted profile is calculated according to equation

$$A_m^{'}(k) = A_m - C_{diff}(m,k).$$

45. The method of claim 44, further comprising

(d) calculating for each profile pair m an error-corrected experiment profile A''_m comprising data set $\{A''_m(k)\}$ by combining said error-adjusted experiment profile A'_m with said experiment profile A_m using a weighing factor $\{w(k)\}$, k = 1, 2, ..., N, wherein $w(k)$ is a weighing factor for the k' th measurement.

46. The method of claim 45, wherein said error-corrected experimental profile A''_m is calculated according to equation

$$A_m^{''}(k) = (1 - w(k)) \cdot A_m(k) + w(k) \cdot A_m^{'}(k).$$

47. The method of claim 46, wherein said weighing factor is determining according to equation

$$w(k) = 1 - e^{-0.5\cdot\left(\frac{\overline{C}(k)}{avg\_bkgstd}\right)^2}$$

where *avg_bkgstd* is an average background standard error.

48. The method of claim 47, wherein said *avg_bkgstd* is determined according to equation

$$avg\_bkgstd = \frac{1}{N}\sum_{k=1}^{N}\left(\frac{1}{M}\sum_{m=1}^{M} bkgstd(m,k)\right)$$

where *bkgstd (m, k)* is background standard error of $C_m(k)$.

49. The method of claim 44, further comprising determining errors $\{\sigma'_m\}$ of said error-adjusted experiment profile $\{A'_m\}$.

50. The method of claim 49, wherein said errors are determined according to equation

$$\sigma'_m(k) = \sqrt{\sigma_m^2(k) + mixed\_\sigma_m^2(k) - 2\cdot Cor(k)\cdot\sigma_m(k)\cdot mixed\_\sigma_m(k)}$$

where $\sigma_m(k)$ is the standard error of $A_m(k)$, $mixed\_\sigma_m(k)$ is determined according to equation

$$mixed\_\sigma_m(k) = \frac{\sigma_m(k) + (M-1)\cdot\sigma_{ref}(k)}{M}$$

where $\sigma_{ref}(k) = \sqrt{\frac{1}{M-1}\sum_{m}^{M}(C_m(k) - \overline{C}(k))^2}$.

and where Cor(k) is a correlation coefficient between experiment profile A_m and reference profile C_m.

51. The method of claim 50, wherein said Cor(k) is determined according to equation

$$Cor(k) = CorMax \cdot \left(1 - e^{-0.5 \cdot \left(\frac{\bar{C}(k)}{avg\_bkgstd}\right)^2}\right)$$

where CorMax is a number between 0 and 1.

52. The method of claim 51, further comprising determining errors $\{\sigma_m^{''}\}$ of said error-corrected experiment profile $\{A''_m\}$.

53. The method of claim 52, wherein said errors are determined according to equation

$$\sigma_m^{''}(k) = \sqrt{[1 - w(k)] \cdot \sigma_m^2(k) + w(k) \cdot \sigma_m^{'}(k)}$$

where $\sigma_m(k)$ is the standard error of $A_m(k)$, $\sigma_m^{'}(k)$ is determined according to equation

$$\sigma_m^{'}(k) = \sqrt{\sigma_m^2(k) + mixed\_\sigma_m^2(k) - 2 \cdot Cor(k) \cdot \sigma_m(k) \cdot mixed\_\sigma_m(k)}$$

where $mixed\_\sigma_m(k)$ is determined according to equation

$$mixed\_\sigma_m(k) = \frac{\sigma_m(k) + (M-1) \cdot \sigma_{ref}(k)}{M}$$

where $\sigma_{ref}(k) = \sqrt{\frac{1}{M-1} \sum_m^M (C_m(k) - \bar{C}(k))^2}$

and where Cor(k) is a correlation coefficient.

54. The method of claim 53, wherein said Cor(k) is determined according to equation

$$Cor(k) = CorMax \cdot \left(1 - e^{-0.5 \cdot \left(\frac{\bar{C}(k)}{avg\_bkgstd}\right)^2}\right)$$

where CorMax is a number between 0 and 1.

55. The method of claim 54, wherein each said pair of profiles XA_m and XC_m is measured in a two-channel microarray experiment.

56. The method of claim 55, wherein said reference profiles $\{XC_m\}$, $m = 1, 2, \ldots, M$, are measured with samples labeled with a same label.

57. The method of claim 56, wherein at least one of said pair of profiles $\{XA_m, XC_m\}$ is a virtual profile.

58. A computer system comprising

a processor, and

a memory coupled to said processor and encoding one or more programs, wherein said one or more programs cause the processor to carry out the method of any one of claims 1-57.

59. A computer program product for use in conjunction with a computer having a processor and a memory connected to the processor, said computer program product comprising a computer readable storage medium having a computer program mechanism encoded thereon, wherein said computer program mechanism may be loaded into the memory of said computer and cause said computer to carry out the method of any one of claims 1-57.

60. A method for generating a differential profile A vs. B from differential profiles A vs. C_A and B vs. C_B, comprising calculating said differential profile A vs. B according to equation

$$lratioAB(k) = polarityAC \cdot lratioAC(k) - polarityBC \cdot lratioBC(k)$$

where $k = 1, 2, \ldots, N$, is the index of measurements in a profile, N being the total number of measurements; wherein $lratioAC(k) = \text{Log}\{A(k) / C_A(k)\}$, if $PolarityAC = 1$, and $lratioAC(k) = \text{Log}\{ C_A(k) / A(k)\}$, if $PolarityAC = -1$, where $A(k)$, and $C_A(k)$ are the k'th measurement from sample A and C_A, respectively; wherein $lratioBC(k) = \text{Log}\{B(k) / C_B(k)\}$, if $PolarityBC = 1$, and $lratioAC(k) = \text{Log}\{ C_B(k) / B(k)\}$, if $PolarityBC = -1$, where $B(k)$, and $C_B(k)$ are the k'th measurement from sample B and C_B, respectively; wherein $\{A(k)\}$ representing measurements of a plurality of different cellular constituents measured in a sample having been subject to condition A, $\{B(k)\}$ representing measurements of said plurality of different cellular constituents measured in a sample having been subject to condition B, and $\{C_A(k)\}$ and $\{C_B(k)\}$ each representing measurements of said plurality of different cellular constituents measured in a sample having been subject to condition C.

61. The method of claim 60, further comprising calculating an error of differential profile A vs. B according to equation

$$\sigma_{lratioAB}(k) = \sqrt{\sigma^2_{lratioAC}(k) + \sigma^2_{lratioBC}(k) - 2 \cdot CorMax \cdot \sigma_{lratioAC}(k) \cdot \sigma_{lratioBC}(k)}$$

wherein $\sigma_{lratioAC}(k)$ and $\sigma_{lratioBC}(k)$ are errors of *lratioAC(k)* and *lratioBC(k)*, respectively, and wherein CorMax is an estimated maximum correlation coefficient between errors of A/C and B/C.

62. The method of claim 60, wherein A vs. C_A and B vs. C_B are experimentally measured profiles.

63. The method of claim 60, wherein at least one of A vs. C_A and B vs. C_B is a virtual profile.

64. A computer system comprising

a processor, and

a memory coupled to said processor and encoding one or more programs, wherein said one or more programs cause the processor to carry out the method of any one of claims 60-63.

65. A computer program product for use in conjunction with a computer having a processor and a memory connected to the processor, said computer program product comprising a computer readable storage medium having a computer program mechanism encoded thereon, wherein said computer program mechanism may be loaded into the memory of said computer and cause said computer to carry out the method of any one of claims 60-63.

66. A method for correcting errors in at least one of a plurality of pairs of profiles $\{A_m, C_m\}$, A_m being an experiment profile, C_m being a reference profile, where m = 1, 2, …, M, M is the number of pairs of profiles, said method comprising generating for at least one profile pair $m \in \{1, 2, \ldots, M\}$ an error-adjusted experiment profile A'_m by a method comprising adjusting said experimental profile A_m using a differential reference profile generated using C_m and an average reference profile $\overline{C}$ determined for said profile pair m, wherein said average reference profile $\overline{C}$ is an average of reference profiles $\{C_m\}$, m = 1, 2, …, M; wherein for each $m \in \{1, 2, \ldots, M\}$, said error-adjusted experiment profile A'_m comprises data set $\{A'_m(k)\}$, said experiment profile A_m comprises data set $\{A_m(k)\}$, said

reference profile C_m comprises data set $\{C_m(k)\}$, and said average reference profile $\overline{C}$ comprises data set $\{\overline{C}(k)\}$, wherein said data set $\{A_m(k)\}$ comprises measurements of a plurality of different cellular constituents measured in a sample having been subject to condition A_m, said data set $\{C_m(k)\}$ comprises measurements of said plurality of different cellular constituents measured in a sample having been subject to condition C, and wherein $k = 1, 2, \ldots, N$ is an index of measurements of cellular constituents, N being the total number of measurements.